

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences**

APPEAL BRIEF

Application No.: 10/559,095
Confirmation No.: 1462
First-Named Inventor: Marianne HOFMANN
Filing Date: December 1, 2005
Art Unit: 3765
Examiner: Hoey, Alissa L.
Attorney Docket No.: 008312-000006
Title: HOOD FOR PROTECTIVE GARMENT

TABLE OF CONTENTS

Description	Page No.
Table Contents	ii
Table of Cases	iii
Real Party in Interest	1
Related Appeals and Interferences	2
Status of Claims	3
Status of Amendments	5
Summary of Claimed Subject Matter	6
Grounds of Rejection to be Reviewed on Appeal	11
Arguments	12
Claims Appendix	30
Evidence Appendix	34
Related Proceedings Appendix	35

TABLE OF CASES

Description	Page No.
<i>Verdegaal Bros. v. Union Oil Co. of California</i> , 814 F.2d 628, 631 (Fed. Cir. 1987).	14

REAL PARTY IN INTEREST

The owner, by assignment, and the real party in interest is:

Blücher GmbH, a corporation of Germany, with a principal place of business at
Mettmanner Strasse 25, D-40699 Erkrath, Germany.

Additionally, Blücher GmbH has a U.S. affiliate, Tex-Shield Inc., with a
principal place of business at 2300 M Street N.W., Suite 800, Washington, D.C. 20037.

RELATED APPEALS AND INTEFERENCES

None.

STATUS OF CLAIMS

1. Canceled
2. Canceled
3. Canceled
4. Canceled
5. Canceled
6. Canceled
7. Canceled
8. Canceled
9. Canceled
10. Canceled
11. Canceled
12. Canceled
13. Canceled
14. Canceled
15. Canceled
16. Canceled
17. Canceled
18. Canceled
19. Canceled
20. Canceled
21. Canceled

22. Rejected
23. Canceled
24. Canceled
25. Rejected
26. Rejected
27. Rejected
28. Rejected
29. Canceled
30. Canceled
31. Rejected
32. Rejected
33. Rejected
34. Rejected
35. Rejected
36. Rejected
37. Rejected
38. Rejected
39. Rejected
40. Rejected
41. Canceled

The claims on appeal are claims 22, 25-28, and 31-40.

STATUS OF AMENDMENTS

None.

No amendments were filed subsequent to final rejection.

SUMMARY OF CLAIMED SUBJECT MATTER

Clarification Note:

All specification page numbers refer to the English translation of the international application, as amended by the response filed January 12, 2009. The line numbers refer to the (un-amended) English translation. The drawing figures are based on the original drawings of FIGS. 2, 3A, 3B, 4A, 4B, 4C, and 5, and on the amended drawings of FIGS. 1 and 6 (see January 12, 2009 Response).

Independent claim 22:

This claim recites the construction and arrangement of a hood as part of a clothing item for use as an NBC protective suit. The hood body includes a peripheral edge which defines a face opening which in turn is constructed and arranged for receiving a respirator. A peripheral elastic hem is constructed and arranged to extend around the face opening and includes an inner face and an outer face. Included is a plurality of peripheral sealing elements which are conjoined to the inner face of the peripheral elastic hem. Those peripheral sealing elements are comprised of elastofibers and are constructed and arranged for closeout abutment against and around the respirator. These individual sealing elements are in substantially parallel arrangement with each other and about the respirator linearly. As such, the sealing elements project or protrude from the hem.

In terms of the claim elements and support for these claim elements, please consider the following listings.

Elements:

hood 1, hood body 1a, peripheral edge 1b, face opening 4, respirator 5, peripheral elastic hem 3, inner face 3b, outer face 3a, sealing element(s) 6, and conjoined to the inner face 3b.

Support:

page 5, lines 16-33; page 6, lines 8-15 with amendment; and FIGS. 1, 4A, 4B, and 6.

Comprised of elastofibers

Support: page 7, lines 25-39; page 8, lines 1-39.

Closeout abutment

Support: page 5, lines 25-33; FIGS. 3A, 3B.

Substantially parallel arrangement

Support: page 6, lines 17-29, FIG. 4A, 4B.

About respirator linearly

Support: page 5, lines 35-39; FIGS. 3B, 4A, 4B.

Sealing elements project or protrude from the hem Support: page 6, lines 31-36; FIG. 4B.

Independent claim 39:

This claim recites the construction and arrangement of a hood as part of a clothing item for use as an NBC protective suit. The clothing item includes a clothing body which defines an opening which in turn is constructed and arranged for receiving an equipment article. A peripheral elastic hem is constructed and arranged to extend around the opening and includes an inner face and an outer face. Included is a plurality of peripheral sealing elements which are conjoined to the inner face of the peripheral elastic hem. Those peripheral sealing elements are comprised of elastofibers and are constructed and arranged for close out abutment against and around the equipment article. These individual sealing elements are in substantially parallel arrangement with each other and

abut the equipment article linearly. As such, the sealing elements project or protrude from the hem.

In terms of the claim elements and support for these claim elements, please consider the following listings.

Elements:

clothing item 1, clothing body 1a, opening 4, equipment article 5, peripheral elastic hem 3, inner face 3b, outer face 3a, sealing element(s) 6, and conjoined to the inner face 3b.

Support:

page 5, lines 16-33; page 6, lines 8-15 with amendment; page 11, lines 7-30; and FIGS. 1, 4A, 4B, and 6.

Comprised of elastofibers

Support: page 7, lines 25-39; page 8, lines 1-39.

Closeout abutment

Support: page 5, lines 25-33; FIGS. 3A, 3B.

Substantially parallel arrangement

Support: page 6, lines 17-29, FIG. 4A, 4B.

Abut respirator* linearly

Support: page 5, lines 35-39; FIGS. 3B, 4A, 4B.

Sealing elements project or protrude from the hem

Support: page 6, lines 31-36; FIG. 4B.

* There is an inadvertent error in claim 39 in that "respirator" does not have an antecedent basis and this term should be changed to "equipment article" so as to be consistent with the text of claim 39.

Independent claim 40:

Recited is a method for closing out the transition between a portion of a clothing item and a further clothing item or equipment article by using an elastic hem. The recited steps of this method include first providing an elastic hem having an inner face and an outer face and then joining that elastic hem to a clothing item such that the elastic hem faces the further clothing item or equipment article. A further step of this method is to provide a plurality of sealing elements in the form of elastofibers and conjoin those sealing elements with the inner face of the hem for closeout abutment against the further clothing item or equipment article.

Closing out the transition

Support: page 1, lines 15-20.

Elements:

clothing item1, equipment article 5, providing an elastic hem 3, inner face 3b, outer face 3a, plurality of sealing elements 6, and conjoined with the inner face 3b.

Support: page 5, lines 16-33; page 6, lines 8-15 with amendment; and FIGS. 1, 4A, 4B, and 6.

Joining said elastic hem to the clothing item

Support: page 2, lines 36-39; page 3, lines 1-22; page 5, lines 6-23, as amended, and FIG. 6.

Said elastic hem faces the equipment article

Support: page 3, lines 12-22; page 5, lines 25-34; and FIG. 6.

Elastofibers

Support: page 7, lines 25-39; page 8, lines 1-39.

For closeout abutment

Support: page 5, lines 25-33, FIGS.

3A and 3B.

There are no means plus function nor any step plug function (per 35 U.S.C. §112, sixth paragraph) elements recited in any of the claims under appeal.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

First Ground of Rejection to be Reviewed on Appeal.

Whether claims 22, 27, 28, 32, 35, 37, 39, and 40 are unpatentable under 35 U.S.C. §102(b) as being anticipated by Pampuch (US 4,174,710).

Second Ground of Rejection to be Reviewed on Appeal.

Whether claims 25, 26, 31, 33, and 34 are unpatentable under 35 U.S.C. §103(a) over Pampuch (US 4,174,710).

Third Ground of Rejection to be Reviewed on Appeal.

Whether claims 36 and 38 are unpatentable under 35 U.S.C. §103(a) over Pampuch (US 4,174,710) in view of Wood (GB 2078491).

ARGUMENTS

First Ground of Rejection to be Reviewed on Appeal.

Rejection under 35 U.S.C. §102(b) as being anticipated by Pampuch (US 4,174,710).

Claims 22, 27, 28, 32, 35, 37, 39, and 40

Second Ground of Rejection to be Reviewed on Appeal.

Rejection under 35 U.S.C. §103(a) over Pampuch (US 4,174,710).

Claims 25 and 31

With regard to the identified listings of claims, Applicant is only going to present arguments directed to the elements of independent claim 22 as set forth below.

FIRST ARGUMENT

Claim 22 recites, among other structural claim elements and relationships, that a plurality of peripheral sealing elements are conjoined to the inner face of the peripheral elastic hem. This is illustrated in FIGS. 4B and 6 and further described on page 7, lines 5-8.

In the 35 U.S.C. §102(b) rejection based on the Pampuch patent, the Examiner relies on Column 2, lines 12-16 (15) of the cited reference. This portion of the Pampuch patent is reproduced below.

Line No. 12	An additional form of construction made in accor-
Line No. 13	dance with this invention is one in which the inside
Line No. 14	surface of the elastic band is also provided with sur-
Line No. 15	rounding laterally spaced ribs.
Line No. 16	Using the ideas on which this invention is based, a

The "elastic band" being referenced in this portion of the Pampuch patent is elastic band 5. One assumption which one might make based on the very limited disclosure is that elastic band 5 is a single-piece member (unitary construction) as it "has" a thickened portion 5a in which is "formed" a peripheral groove 5c (Column 1, lines 63-64). The Pampuch drawings only show a portion of elastic band 5 as being of a single-piece, unitary construction. If elastic band 5 has a single-piece, unitary construction, then whatever laterally spaced ribs might be formed as part of this "additional form of construction", these ribs are going to be formed or molded as part of this same single-piece, unitary construction of elastic band 5.

There is no basis to assume any more from the Pampuch disclosure and there is no basis to speculate that these laterally spaced ribs would be either "sealing elements" or would be "conjoined" to the elastic band 5. There is absolutely nothing disclosed or even remotely suggested in the Pampuch patent that the laterally spaced ribs, for the referenced additional form of construction, would be conjoined. In fact, the closest "teaching" from Pampuch indicates just the opposite.

When it was desired to add further structural features to elastic band 5 for its style of "key/lock" connection to the respirator mask, the manner of doing so was to integrate thickened portion 5a into the single-piece, unitary construction of elastic band 5 and to then "form" the peripheral groove 5c. Every indication supports the contention that, if any laterally spaced ribs would be added to elastic band 5 for the referenced "additional form of construction", it would be by forming those ribs into the single-piece, unitary construction of elastic band 5. In fact, the actual language which the Examiner relies

upon refers to the elastic band being "provided with" the laterally spaced ribs. This "provided with" phrasing is consistent with the construction for elements 5a and 5c and would support the assumption that there is a single-piece, unitary construction. This single-piece, unitary construction approach does not have the ribs conjoined to the inner face of the elastic band as the Examiner speculates. Conjoined is defined as "being, coming, or brought together so as to meet, touch, overlap, or unite."¹ Two separate items or distinct ends of a single item are required in order to meet, touch, overlap, or unite. Pampuch does not teach two separate items.

A rejection of claim 22 requires something more than this level of speculation and guesswork. Nothing found in or properly inferred from the Pampuch patent supports the Examiner's position that the added ribs would be conjoined to the inner face of the elastic band. This alone supports the allowance of claim 22 and those claims which depend from claim 22. Since the two other independent claims, claims 39 and 40, include this distinguishing element, those claims are also in condition for allowance. Applicant submits that Pampuch does not set forth each and every element of independent claims 22, 39, and 40 which is required for a *prima facie* rejection and thus the Examiner's rejection is clear error. *See Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987) (a "claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference").

¹ "conjoined." Merriam-Webster Online Dictionary. 2010. Merriam-Webster Online. 19 August 2010 <<http://www.merriam-webster.com/dictionary/conjoined>>
 Appeal Brief
 Serial No. 10/559,095 Art Unit 3765
 Atty. Docket No. 008312-000006
 Page 14 of 35

A related issue or question concerning the Examiner's interpretation of the referenced four lines of disclosure from the Pampuch patent is why are laterally spaced ribs being added to the "additional form of construction" (Column 2, lines 12-15). There is nothing disclosed in the Pampuch patent which explains why laterally spaced ribs might be added to this additional form of construction. Since rib 3 fits within groove 5c solely for the purpose of trying to effect a secure connection for the suit 4 to the mask 1, it is equally likely, if not more so, that the added ribs are intended to only reinforce the connection interface between the suit 4 and mask 1 and, as such, these added ribs would fit in between, in alternating sequence, with ribs 2 and 2a. This type of connection is to secure the connection interface in order to prevent the suit from pulling away from the mask. This manner of interfit connection is to limit any axial or linear movement without any intention of providing peripheral sealing. How can one characterize these added ribs as "peripheral sealing elements" without even knowing the intended purpose for these ribs? The Pampuch patent fails to mention any use or intended purpose for the laterally spaced ribs. Since they seem to be used with ribs 2 and 2a on the mask, the more logical assumption is that these added ribs would be used for reinforcing the suit-to-mask connection interface in cooperation with ribs 2 and 2a which remain as part of the mask.

If these added ribs are intended to fit in between the existing ribs on the mask, then their size and spacing become critical and proper alignment could be extremely difficult. As such, shorter and narrower ribs would be called for so as to easily fit between ribs 2 and 2a. This interfit would still secure the connection, but would have no "sealing" properties. The referenced portion of the Pampuch patent states that "the elastic band is also provided . . . " (emphasis added). The use of "also" makes it clear that the

ribs on the mask are retained. There are simply too many unknowns with this sparse and incomplete cited portion of the Pampuch patent and too many gaps which require speculation and guesswork. The only way which the Examiner can conceivably base a rejection on the Pampuch patent and in particular the cited portion of that reference is to selectively fill in the numerous gaps in the disclosure with unsupported assumptions and the application of hindsight knowledge. As such, the grounds of rejection of claim 22 and those claims grouped with claim 22 is not based on any actual teaching from the Pampuch patent but, instead, is based entirely on assumptions and guesswork.

SECOND ARGUMENT

Claim 22 recites that the peripheral sealing elements are comprised of "elastofibers". The "elastofibers" terms is very clearly explained and defined in the specification. For example, consider page 7, lines 25-36; page 8, lines 25-39; and page 9, lines 1-9. These portions, consistent with what would be understood from the relevant art, provide explanatory technical information regarding the "elastofibers" term.

The Examiner contends that, inherently, every "elastic material" is comprised of elastofibers. This contention, as set forth on page 3 of the May 25, 2010 Office Action, is based on further assumptions and speculation and ignores the proper interpretation of the term, "elastofibers", according to the specification. One of the examples given in the specification of an elastofibers is "elastane".

As noted above, the Examiner contends (referring to Column 2, lines 12-15) that the laterally spaced ribs which are provided on the inside surface of the elastic band correspond to the recited "peripheral sealing elements". If, as Applicant contends, the Pampuch laterally spaced ribs are part of the single-piece, unitary construction of elastic

band 5, then these ribs would presumably be fabricated out of the same material which comprises that portion of elastic band 5 which is illustrated in the Pampuch patent. In turn, though, this means that these laterally spaced ribs are not "conjoined". There is though one additional point to raise at this juncture regarding the reference to "elastic band 5" in the Pampuch patent. Since the Pampuch specification does not indicate any specific construction for the elastic band, nor does it indicate a selected or suitable material, the "elastic" property might be provided by a multi-part construction where the majority of elastic band 5 is not fabricated out of an elastomer, but out of some other material so as to provide a stronger interfit and connection between the suit and the mask. Any elastic properties might be due simply to the addition of an elastomer panel as one section of elastic band 5. Based on the disclosure provided by the Pampuch patent, there is no basis to assume that the structure illustrated for elastic band 5 is in fact an elastomer material throughout. Even if the Board concludes that a more likely assumption is that elastic band 5 is fabricated out of an elastomer as a single-piece, unitary member, it points out the continuing deficiencies with the Pampuch disclosure and the lack of any sufficient teaching as to the specific details and properties which would be required for a proper rejection of the claims under appeal. Assumptions must be made since the disclosure of the Pampuch patent is deficient.

Assuming for the sake of Applicant's continuing arguments that elastic band 5 is a single-piece, unitary construction of an elastomer material, the Examiner has assumed that this elastomer material would be comprised of elastofibers due simply to the elastomer construction. However, where does the "elastic material construction", as referenced by the Examiner, come from? The Pampuch patent only refers to an "elastic

band 5". If we accept that the "elastic band 5" has an elastic material construction, then the only basis to assume that the laterally spaced ribs also have an elastic material construction is to admit that these ribs are in fact formed as part of elastic band 5 as part of that single-piece, unitary construction and therefore are not conjoined to the inner face. The Examiner's "inherently" argument constitutes an admission that the laterally spaced ribs are not conjoined to the inner face as required by claims 22, 39, and 40. Otherwise, there is nothing anywhere in the Pampuch patent, even inherently, which reveals any information regarding the material of the laterally spaced ribs.

The Examiner's rejection of claim 22 includes several assumptions. One assumption is that the laterally spaced ribs are constructed and arranged as peripheral sealing elements and are conjoined to the inner face of the hem. Another assumption is that these laterally spaced ribs have an elastic material construction. At most, only one of these two assumptions is possible. They cannot both coexist, based on the Pampuch patent.

THIRD ARGUMENT

If we assume that these laterally spaced ribs have an elastic material construction (and are not conjoined), then the next question is whether there is any basis for the Examiner to further assume that these laterally spaced ribs are comprised of elastofibers. The most that anyone could assume from an "elastic material construction" is that the material is an elastomer, such as natural rubber. In contrast, elastane, one of the examples provided by Applicant of an elastofiber, is a synthetic fiber known for its exceptional elasticity. This material is considered to be stronger and more durable than rubber and, when compared to rubber, elastane has both greater tear resistance and

durability and a tension capacity two or three times greater at a third of the weight. The technical documents included as part of Exhibit A include supporting technical information directed to what is stated above.

The entirety of the Pampuch disclosure on this aspect is limited to "elastic band 5". There is nothing more disclosed and anything further which might be assumed or inferred is simply a fiction. As noted, an "elastic band" could be based on the use of a small elastomer panel in combination with a non-elastic material. If there is an elastomer material associated with the Pampuch construction, it could just as easily be natural rubber as opposed to some other material such as the synthetic elastane, one of the examples provided in Applicant's specification. There simply is no rational basis or support for the Examiner to take the giant leap from "elastic band 5" all the way to the existence of peripheral sealing elements which are comprised of elastofibers.

As is believed to be clear from the specification, generally pages 8 and 9, one example of an "elastofiber" is represented by the composition of the synthetic polymer, elastane. Another example of an "elastofiber" is elastodiene. While natural rubber could be a starting material and subjected to further processing in order to achieve an elastofiber status, there are forms and grades of natural rubber which behave as elastomers, but which have not been subjected to the elastofiber processing.

Also believed to be clear from the specification is that "elastofibers" are manufactured fibers which are extremely extensible and, after the tensile force has been removed, substantially return to their original state. Since elastofibers are "manufactured", the specific composition and properties are based in part on the starting material(s) and based in part on the subsequent processing steps and sequence. When

these processing steps and sequence result in an elastofiber, what is created is a material composition with a notably low Young's modulus and a high yield strain.

As noted, the only basis to speculate that the laterally spaced ribs of the Pampuch patent are fabricated from an elastomer material is to assume that these ribs are unitarily formed as part of the elastic hem 5. However, even these speculative assumptions do not "stretch" to the conclusion that the elastomer material is actually processed in a manner suitable to create an elastofiber composition and provide the requisite properties as delineated in the specification.

FOURTH ARGUMENT

The Examiner continues to rely on Column 2, lines 12-16 (15) for the rejection of claim 22 and for the contention that the laterally spaced ribs are arranged for abutment against and around the respirator. The Examiner also refers to Column 1, lines 67-68 and Column 2, lines 1-11. There is nothing set forth in the referenced portion of the Pampuch patent which mentions any specific type or manner of abutment with the respirator other than the interfit of rib 3 into groove 5c. The referenced portion of Pampuch, as relied upon by the Examiner, does not mention the specifics recited in claim 22. The Examiner also contends that the laterally spaced ribs are in substantially parallel arrangement with each other. The Examiner's sole "support" for this contention are the same portions of the Pampuch patent (Column 1, lines 67-68, Column 2, lines 1-17, and Column 2, lines 12-16). However, there is absolutely nothing in these recited portions nor anywhere else in the entirety of the Pampuch patent to support the Examiner's contention regarding a "substantially parallel arrangement".

The Examiner points to Pampuch, column 2, lines 12-16 as showing Applicant's claimed element of "individual sealing elements in substantially parallel arrangement with each other." The Examiner is simply incorrect, as nowhere in those lines is there any mention of substantially parallel sealing elements. Additionally, nowhere in the entire Pampuch reference is there any mention of parallel or substantially parallel sealing elements.

Perhaps the Examiner assumed that "laterally spaced" (Pampuch, column 2, line 15) equates to "substantially parallel arrangement" (subject application, claim 22). Applicant submits that this contention is incorrect, as sealing elements can be laterally spaced, but not substantially parallel. "Parallel" is defined as "extending in the same direction, everywhere equidistant, and not meeting."² "Laterally" is defined as "situated on, directed toward, or coming from the side."³ "Laterally spaced", as used in Pampuch, could describe a substantially parallel arrangement, but being substantially parallel is not a requisite feature of a laterally spaced arrangement.

Nowhere in Pampuch is the term "laterally spaced" defined such as to encompass a limitation of "substantially parallel." When describing the mask provided with ribs, Pampuch describes those ribs as being "spaced a suitable distance apart" and being "laterally spaced . . . such that they form a sort of labyrinth." (Pampuch, column 1, lines 44-48). This definition does not limit "laterally spaced" to "substantially parallel." In fact, the term labyrinth, which Pampuch does not otherwise define, has a dictionary definition of "an intricate structure of inter-connecting passages through which it is

² "parallel." Merriam-Webster Online Dictionary. 2010. Merriam-Webster Online. 19 August 2010 <<http://www.merriam-webster.com/dictionary/parallel>>

difficult to find one's way."⁴ This is hardly the equivalent of "substantially parallel." Additionally, even rib 3 shown in the Pampuch figure appears to widen near the ear area of the mask and narrow near the top and bottom areas, thus its defining sides are not substantially parallel.

Considering the numerous deficiencies of the Pampuch patent as explained and argued above, claim 22 is in condition for allowance. Based on these same arguments and explanations, independent claims 39 and 40 are also in condition for allowance. Accordingly, the rejections by the Examiner should be reversed and claims 22, 25-28, and 31-40 indicated as allowed.

Second Ground of Rejection to be Reviewed on Appeal.

Rejection under 35 U.S.C. §102(b) as being anticipated by Pampuch (US 4,174,710).

Rejection under 35 U.S.C. §103(a) over Pampuch (US 4,174,710).

Claim 26

Claim 22 recites that the plurality of peripheral sealing elements are conjoined to the inner face of the peripheral elastic hem. Dependent claim 26 recites that the securing methodology for this conjoined construction is selected from the group consisting of stitching, interweaving, adhering, stapling, and welding.

³ "laterally." Merriam-Webster Online Dictionary. 2010. Merriam-Webster Online. 19 August 2010 <<http://www.merriam-webster.com/dictionary/laterally>>

⁴ "labyrinth." Houghton Mifflin. 2010. Yahoo Education. 23 August 2010 <<http://education.yahoo.com/reference/dictionary/entry/labyrinth>>

The Examiner rejects claim 26 as being unpatentable over the Pampuch patent. The Examiner contends that Applicant's specification contains no disclosure of either the critical nature of the claimed attaching methods or any unexpected results arising therefrom. Surprisingly, the Examiner presumptively assumes that Pampuch discloses that the "sealing elements" are attached to the hem, but fails to specifically teach any method of attaching.

Referring now to the Examiner's paragraph 5 on page 6 of the Office Action, the Examiner once again (see the rejection of claim 22) refers to "the sealing elements", even though the Pampuch patent never once makes any reference to any "sealing elements" being attached (i.e., conjoined) to the hem. Lest we forget, the primary portion of the Pampuch patent which is relied upon by the Examiner reads as follows:

Line No. 12	An additional form of construction made in accor-
Line No. 13	dance with this invention is one in which the inside
Line No. 14	surface of the elastic band is also provided with sur-
Line No. 15	rounding laterally spaced ribs.
Line No. 16	Using the ideas on which this invention is based, a

The phrase "provided with surrounding laterally spaced ribs" does not equate to "sealing elements being attached to the hem". There is nothing in the Pampuch patent to support the hindsight assumption that these ribs are used for sealing. There is nothing in the Pampuch patent to support the hindsight assumption that these ribs are attached to the hem. As discussed above with regard to claim 22, the Examiner needs to decide on which set of assumptions are going to be followed and then live with that decision. Even then, the assumptions are considered to go beyond what one of ordinary skill in the art

would contemplate. For this rejection, the assumption is that the Pampuch ribs are "attached" to the hem, even though the Pampuch wording is that the elastic band is "provided" with the ribs.

The Examiner's only possible argument for the existence of anything related to elastofibers (claim 22) in the Pampuch patent is to contend that the ribs are part of the single-piece, unitary construction of elastic band 5. For this discussion, we will assume that elastic band 5 is a single-piece, unitary construction using an elastomer material, though as presented above it could just as easily be of a two-part construction, where only a small panel or insert is actually the elastomer, where the balance of the band is a non-elastomer. With this particular assumption, it should be noted that there is nothing to even remotely suggest an elastomer construction for the ribs unless those ribs are in fact unitarily formed as part of the elastic band 5. If the ribs are unitarily formed as part of the elastic band 5, assuming an overall elastomer construction, then the ribs cannot be "conjoined" or attached to the inner face of the hem. The Examiner has to choose between the two assumptions and the assumption not chosen provides a clear basis for patentability.

Claim 33

Claim 33 recites a specific range of elastic extensibility based on the original length. This property is explained in the specification, see page 7, lines 25-36. Applicant's specification also explains the importance of having a higher contact pressure and a higher closeout, (page 6, lines 33-36) for a final product, such as an NBC protective suit.

The Examiner's rejection of claim 33 is based on the Pampuch patent. The Examiner admits that the Pampuch patent fails to teach the extensibility of the "sealing elements" (paragraph 5, page 6 of the Office Action). Once again, the Examiner begins this rejection by assuming facts which are not in evidence and which are based on unsupported speculation. The Examiner assumes first that the laterally spaced ribs of Pampuch are in fact sealing elements. The Examiner also assumes that these ribs have an elastomer construction and thus some degree of extensibility. An equally-likely assumption, based on the limited disclosure provided by the Pampuch patent, is that these ribs interfit in alternating sequence with ribs 2 and 2a, similar to the interfit of rib 3 into groove 5c. As such, these added ribs would not necessarily have any elasticity and thus would not have any property of extensibility.

The Pampuch patent describes its one and only approach for sealing around the mask as using the "smooth inside surface of the elastic band" to overlap and engage ribs 2 with a certain contact pressure (see Column 2, lines 3-4). This could still be accomplished even if the laterally spaced ribs are arranged so as to interfit into alternating sequence with ribs 2 and 2a. If these laterally spaced ribs are used in this manner, then they would not be "sealing elements", but instead they would be connection elements for a stronger and more secure connection interface between the protective suit 4 and the mask 1. The Pampuch patent never suggests that its one and only disclosed sealing technique of using the "smooth" inside surface of the elastic band 5 is supposed to change as part of the "additional form of construction" which is the lead in explanation to the portion of text relied upon exclusively by the Examiner. Clearly, the Pampuch patent is deficient as the sole basis upon which to reject claim 33.

Claim 34

Claim 34 recites a specific range for the modulus of elasticity. This property is explained in the specification, see page 7, lines 25-36. Applicant's specification also explains the importance of having a higher contact pressure and a higher close-out, (page 6, lines 33-36) for a final product, such as an NBC protective suit.

The Examiner's rejection of claim 34 is based on the Pampuch patent. The Examiner admits that the Pampuch patent fails to teach any modulus of elasticity for the "sealing elements" (paragraph 5, page 6 of the Office Action). Once again, the Examiner begins this rejection by assuming facts which are not in evidence and which are based on unsupported speculation. The Examiner assumes first that the laterally spaced ribs of Pampuch are in fact sealing elements. The Examiner also assumes that these ribs have an elastomer construction and thus some modulus of elasticity. An equally-likely assumption, based on the limited disclosure provided by the Pampuch patent, is that these ribs interfit in alternating sequence with ribs 2 and 2a, similar to the interfit of rib 3 into groove 5c. As such, these added ribs would not necessarily have any elasticity and thus would not have a modulus of elasticity .

The Pampuch patent describes as its one and only approach for sealing around the mask using the "smooth inside surface of the elastic band" to overlap and engage ribs 2 with a certain contact pressure. This could still be accomplished even if the laterally spaced ribs are arranged so as to interfit into alternating sequent with ribs 2 and 2a. If these laterally spaced ribs are used in this manner, then they would not be "sealing elements", but instead they would be connection elements for a stronger and more secure

connection interface between the protective suit 4 and the mask 1. The Pampuch patent never suggests that its one and only disclosed sealing technique of using the "smooth" inside surface of the elastic band 5 is supposed to change as part of the "additional form of construction" which is the lead in explanation to the portion of text relied upon exclusively by the Examiner. Clearly, the Pampuch patent is deficient as the sole basis upon which to reject claim 34.

Third Ground of Rejection to be Reviewed on Appeal.

Rejection under 35 U.S.C. §103(a) as being unpatentable over by Pampuch (US 4,174,710) in view of Wood (GB 2,078,491).

Claims 36 and 38

Claim 36 recites a liner with an inside material having a specific composition in terms of its properties or capabilities. The Examiner's rejection relies on the combination of Pampuch in view of Wood. More particularly, the Examiner wants to add inserts 7 of Wood into the protective suit of Pampuch to try and create the claimed invention. In addition to what has already been argued in terms of claim 22 and the deficiencies of the Pampuch patent, the elements of the Wood reference selected by the Examiner are not sufficient as a basis for the rejection of claim 36.

The Wood reference refers to insert 7 fabricated from charcoal impregnated foam or cloth. The sole purpose is to filter any air which might flow passed the insert location. There is a single construction and a single function disclosed by this reference, simply and only to filter any air.

Claim 36 recites, as one material option for the "liner", a water-vapor-pervious but gas-impervious barrier layer. This material is not an air filter in the sense of what Wood discloses since it is intended to provide a gas-impervious barrier layer. The air filter construction of inserts 7 of the Wood reference allows air to pass through, but is supposed to pick off some of any undesirable particulate which is being carried by the air flow.

The passage of Wood cited by the Examiner (page 1, lines 58-65) does not disclose the second material option recited in claim 36. Accordingly, regardless of the decision on claim 22, claim 36 recites patentable subject matter. Further, since the claim 36 material options are grouped together, it is assumed that both materials are part of the same family and would have the gas-impervious barrier layer construction.

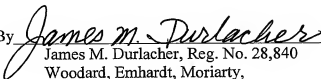
Further Arguments Regarding All Three Grounds of Rejection - Parallel Prosecutions

The Examiner is further advised that in all parallel prosecution proceedings the patentability of the claimed subject-matter has been agreed upon, resulting in the acknowledgment of patentability in Europe (EP 1 628 713 B1), Canada (CA 2 524 465) and Japan (Japanese Patent 4,257,663). Representative documents are included in Exhibits B, C, and D. Furthermore, the European Patent Office in its function as IPEA has also acknowledged the patentability of all amended claims filed on behalf of international prosecution phase.

In this context, it is also pointed out that the same Pampuch reference has been explicitly acknowledged in Canada and Europe and has been classified with respect to the

European international search report as a so-called "A-Document" and thus a prior art document which only defines the general background art but which as such is not otherwise pertinent.

Respectfully submitted,

By  James M. Durlacher

James M. Durlacher, Reg. No. 28,840

Woodard, Emhardt, Moriarty,

McNett & Henry LLP

111 Monument Circle, Suite 3700

Indianapolis, Indiana 46204-5137

(317) 634-3456

Attorney for Applicant

CLAIMS APPENDIX

22. A hood, in particular for a clothing item for protective and military purposes, such as an NBC protective suit, said hood comprising:

a hood body having a peripheral edge defining a face opening, said face opening being constructed and arranged for receiving a respirator;

a peripheral elastic hem attached to said peripheral edge, said peripheral elastic hem being constructed and arranged to extend around said face opening, said peripheral elastic hem having an inner face and an outer face; and

a plurality of peripheral sealing elements conjoined to the inner face of said peripheral elastic hem, said plurality of peripheral sealing elements comprised of elastofibers and being constructed and arranged for closeout abutment against and around the respirator received by said face opening, wherein the individual sealing elements are in substantially parallel arrangement with each other, wherein the sealing elements abut the respirator linearly, and wherein the sealing elements project or protrude from the hem .

25. The hood according to claim 22, wherein the sealing elements project or protrude from the hem by not less than 0.25 mm, preferably not less than 0.4 mm.
26. The hood according to claim 22, wherein the sealing elements are secured to the hem by using one of the securing methodologies selected from the group consisting of stitching, interweaving, adhering, stapling and welding.

27. The hood according to claim 22, wherein the sealing elements are each configured as one of the forms selected from the group consisting of a sealing ring, as a sealing lip or as a sealing protrusion.
28. The hood according to claim 22, wherein the sealing elements are constructed and arranged as one of the structures selected from the group consisting of thread-shaped, ligament-shaped, string-shaped, strip-shaped, web-shaped and honeycomb-shaped.
31. The hood according to claim 22, wherein the cross-sectional thickness of the sealing elements is not less than 1/4 of the cross-sectional thickness of the hem.
32. The hood according to claim 22, wherein the elasticity of the sealing elements corresponds at least essentially to the elasticity of the hem.
33. The hood according to claim 22, wherein the sealing elements have a relative elastic extensibility, based on their original length, of not less than 30 %.
34. The hood according to claim 22, wherein the material of which the sealing elements consist has, at 25 °C, a modulus of elasticity in stretching in the range of from $5 \cdot 10^5 \text{ N} \cdot \text{m}^{-2}$ to $9 \cdot 10^6 \text{ N} \cdot \text{m}^{-2}$.

35. The hood according to claim 22, wherein the hood including the face opening comprises, on the side portion of face opening, a fastener.
36. The hood according to claim 22, wherein the hood includes a liner on its inside surface with an inside material, the inside material comprising a material selected from the group consisting of: (i) an adsorption-capable material on the basis of activated carbon, and (ii) a water-vapor-pervious, but gas-impervious barrier layer preventing or retarding the passage of harmful gases and liquids.
37. A clothing item, in particular for protective and/or military purposes, such as an NBC protective suit or the like, comprising a hood as defined in claim 22.
38. The clothing item according to claim 37, wherein the clothing item includes a liner on its inside surface with an inside material, the inside material comprising a material selected from the group consisting of: (i) an adsorption-capable material on the basis of activated carbon, and (ii) a water-vapor-pervious, but gas-impervious barrier layer preventing or retarding the passage of harmful gases and liquids.
39. A clothing item, in particular for protective and military purposes, such as an NBC protective suit or the like, said clothing item comprising:
- a clothing body defining at least one opening for a body part, such as a hand, arm, foot, leg or head;

a peripheral elastic hem attached to said clothing body, said peripheral elastic hem being constructed and arranged to extend around said opening, the opening being provided for receiving a further clothing item or an equipment article, said peripheral elastic hem having an inner face and an outer face; and

a plurality of peripheral sealing elements which are conjoined to the inner face of said peripheral elastic hem, said plurality of peripheral sealing elements comprised of elastofibers and being constructed and arranged for closeout abutment against and around the further clothing item or equipment article, wherein the individual sealing elements are in substantially parallel arrangement with each other, wherein the sealing elements abut the respirator linearly, and wherein the sealing elements project or protrude from the hem .

40. A method for closing out the transition between a portion of a clothing item on the one hand and a further clothing item or equipment article on the other hand by using an elastic hem, comprising the steps of:

providing an elastic hem having an inner face and an outer face;

joining said elastic hem to said clothing item wherein said elastic hem faces the further clothing item or the equipment article;

providing a plurality of sealing elements in the form of elastofibers; and

conjoining said plurality of sealing elements with the inner face of said hem for closeout abutment of the further clothing item or equipment article.

EVIDENCE APPENDIX

Exhibit A Information with regard to elastane fibers and natural rubber

Exhibit B EP Patent No. 1628713 (selected pages)

Exhibit C Canadian Patent No. 2524465 (selected pages)

Exhibit D European Search Report

RELATED PROCEEDINGS APPENDIX

None.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences**

APPEAL BRIEF

Application No.: 10/559,095
Confirmation No.: 1462
First-Named Inventor: Marianne HOFMANN
Filing Date: December 1, 2005
Art Unit: 3765
Examiner: Hoey, Alissa L.
Attorney Docket No.: 008312-000006
Title: HOOD FOR PROTECTIVE GARMENT

EXHIBIT A

ELASTANE FIBRES

Significance

The elastic revolution.

Elastane fibres, better known under their trade names, Lycra and Dorlastan, represent a further high point in the development of man-made fibres. Invented in 1937 in Germany, elastane has properties not found in nature, the most important being an extraordinary elasticity.

Compared to rubber, elastane has both greater tear resistance and durability and a tension capacity two or three times greater, at a third of the weight. Elastane is used in all areas where a high degree of permanent elasticity is required, as, for example, in tights, sportswear, swimwear, corsetry, and in woven and knitted fabrics. When stretched, it always reverts to its original form. Elastane thus is a prerequisite for fashionable or functional apparel which is intended to cling to the body, while at the same time remaining comfortable.

The fibre

Elastane combines its good properties with both natural and man-made fibres.

There are two principal methods used in processing elastane. One is to wrap the elastane fibre in a non-elastic thread - either natural or man-made. The resulting yarn has the appearance and feel of the outer fibre used. The second method involves using pure elastane threads, which are worked or woven into fabrics made from other fibres. The added elasticity makes such fabrics more comfortable to wear. Blends with elastane depend on the type of fabric and the end use.

On care labels elastane is often designated as "EL".

Properties

High performance and easy care.

Elastane fibres can be stretched from four to seven times their length, reverting to their original length when the tension is relaxed. Elastane has the highest stretch tension of all textile raw materials.

Two per cent elastane is enough to make trousers, for instance, retain their shape. For body-shaped silhouette and high stretch capacity, i.e. in swimwear, corsetry or sportswear, 15 - 40% elastane is used.

Elastane fibres guarantee a high degree of comfort combined with great freedom of movement.

In woven and knitted fabrics elastane increases shape retention and accelerates crease recovery.

Elastane is not sensitive to transpiration, make-up, cosmetics, sun cream or sea water. For example swimwear with elastane should be rinsed out after bathing.

Elastane is easy to care for.

Our members use the following trade names for elastane:

Dorlastan®
Roica®

Natural rubber

From Wikipedia, the free encyclopedia

Natural rubber is an elastomer (an elastic hydrocarbon polymer) that was originally derived from latex, a milky colloid produced by some plants. The plants would be 'tapped', that is, an incision made into the bark of the tree and the latex sap collected and refined into a usable rubber. The purified form of natural rubber is the chemical polyisoprene, which can also be produced synthetically. Natural rubber is used extensively in many applications and products, as is synthetic rubber.

Contents

- 1 Varieties
- 2 Discovery of commercial potential
- 3 Properties
- 4 Solvents
- 5 Chemical makeup
 - 5.1 Elasticity
- 6 Current sources
 - 6.1 Cultivation
 - 6.2 Collection
- 7 Uses
 - 7.1 Prehistoric uses
 - 7.2 Manufacturing
 - 7.3 Textile applications
- 8 Vulcanization
- 9 Allergic reactions
- 10 See also
- 11 References
 - 11.1 Notes
 - 11.2 Sources
- 12 Bibliography
- 13 External links



Latex being collected from a tapped rubber tree

Varieties

The commercial source of natural rubber latex is the para rubber tree (*Hevea brasiliensis*), a member of the spurge family, Euphorbiaceae. This is largely because it responds to wounding by producing more

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences**

APPEAL BRIEF

Application No.: 10/559,095
Confirmation No.: 1462
First-Named Inventor: Marianne HOFMANN
Filing Date: December 1, 2005
Art Unit: 3765
Examiner: Hoey, Alissa L.
Attorney Docket No.: 008312-000006
Title: HOOD FOR PROTECTIVE GARMENT

EXHIBIT B

(19)



Europäisches
Patentamt
European
Patent Office
Office européen
des brevets

(11)

EP 1 628 713 B1



(12)

EUROPÄISCHE PATENTSCHRIFT

- (45) Veröffentlichungstag und Bekanntmachung des
Hinweises auf die Patenterteilung:
03.01.2007 Patentblatt 2007/01

(51) Int. Cl.:
A62B 17/00 (2006.01)

(21) Anmeldenummer: 04731824.1

(86) Internationale Anmeldenummer:
PCT/EP2004/004932

(22) Anmeldetag: 08.05.2004

(87) Internationale Veröffentlichungsnummer:
WO 2004/105880 (09.12.2004 Gazette 2004/50)

(54) KAPUZE FÜR SCHUTZBEKLEIDUNG

HOOD FOR PROTECTIVE GARMENT

CAPUCHE POUR VETEMENT DE PROTECTION

(84) Benannte Vertragsstaaten:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IT LI LU MC NL PL PT RO SE SI SK TR
Benannte Erstreckungsstaaten:
AL HR LT LV MK

(72) Erfinder: HOFMANN, Marianne
40239 Düsseldorf (DE)

(30) Priorität: 02.06.2003 DE 10325057
21.06.2003 DE 10327994

(74) Vertreter: Gesthuysen, von Rohr & Eggert
Patentanwälte
Huyssenallee 100
45128 Essen (DE)

(43) Veröffentlichungstag der Anmeldung:
01.03.2006 Patentblatt 2006/09

(56) Entgegenhaltungen:
EP-A- 0 057 517 DE-A- 3 924 033
DE-A- 19 834 688 DE-U- 7 715 247
DE-U- 8 710 165 GB-A- 2 078 491
US-A- 2 005 072 US-A- 2 085 325
US-A- 4 500 581 US-A- 5 653 225
US-A1- 2003 033 657

(73) Patentinhaber: Blücher GmbH
40699 Erkrath (DE)

Anmerkung: Innerhalb von neun Monaten nach der Bekanntmachung des Hinweises auf die Erteilung des europäischen Patents kann jedermann beim Europäischen Patentamt gegen das erteilte europäische Patent Einspruch einlegen. Der Einspruch ist schriftlich einzureichen und zu begründen. Er gilt erst als eingelegt, wenn die Einspruchsgebühr entrichtet worden ist. (Art. 99(1) Europäisches Patentübereinkommen).

schlusses oder Klettverschlusses.

15. Bekleidungsstück nach Anspruch 13 oder 14, dadurch gekennzeichnet, daß das Bekleidungsstück (2) an seiner Innenseite vollständig oder teilweise mit einem Innenmaterial ausgekleidet ist, wobei das Innenmaterial ein adsorptionstfähiges Material, insbesondere Aktivkohle, vorzugsweise in Form von Aktivkohlekörnern bzw. -kügelchen und/oder Aktivkohlefasern, umfaßt und/oder eine wasserdampfdurchlässige, zumindest im wesentlichen gas- und/oder luftundurchlässige Sperrschicht, die den Durchtritt von schädlichen Gasen oder Flüssigkeiten, insbesondere chemischen Kampfstoffen, verhindert oder zumindest verzögert, umfaßt.

16. Bekleidungsstück (2), insbesondere für Schutz- und/oder militärische Zwecke, wie ABC-Schutzanzug oder dergleichen, wobei das Bekleidungsstück (2) mindestens eine Öffnung (4) für einen Körperteil, wie Hand, Arm, Fuß, Bein oder Kopf, mit einem umlaufenden elastischen Saum (3) zur Bildung dieser Öffnung (4) aufweist, wobei die Öffnung (4) zur Aufnahme eines weiteren Bekleidungsstückes insbesondere mit glatter Oberflächenseite und/oder zur Aufnahme eines Ausrüstungsgegenstandes (5) vorgesehen ist und sich der Saum (3) im Gebrauchszustand an das weitere Bekleidungsstück und/oder den Ausrüstungsgegenstand (5) anlegt, dadurch gekennzeichnet, daß auf der dem weiteren Bekleidungsstück und/oder dem Ausrüstungsgegenstand (5) zugewandten Seite des Saums, vorzugsweise auf der in die Öffnung (4) weisenden Seite des Saums (3), eine Mehrzahl umlaufender, dauerhaft mit dem Saum (3) verbundener Dichtelemente (6) in Form von Elastofasern zum Abdichten des Anliegens an das weitere Bekleidungsstück und/oder an den Ausrüstungsgegenstand (5) vorgesehen ist.

17. Bekleidungsstück nach Anspruch 16, gekennzeichnet durch die Merkmale des kennzeichnenden Teils eines oder mehrerer der Ansprüche 1 bis 15.

18. Verwendung eines elastischen Saums (3) zum Abdichten des Übergangs zwischen einem Teil eines Bekleidungsstückes (2), insbesondere einer Kapuze (1), einerseits und einem weiteren Bekleidungsstück und/oder einem Ausrüstungsgegenstand (5), insbesondere einer Atemschutzmaske, andererseits, dadurch gekennzeichnet, daß auf der zu dem weiteren Bekleidungsstück und/oder zu dem Ausrüstungsgegenstand (5) weisenden Seite des Saums (3) eine Mehrzahl umlaufender, dauerhaft mit dem Saum (3) verbundener Dichtelemente (6) in Form von Elastofasern zum Abdichten des Anliegens an das weitere Bekleidungsstück und/oder an den Ausrüstungsgegenstand (5) vorgesehen

hen ist.

19. Verwendung nach Anspruch 18 zum Abdichten des Übergangs einer Kapuze (1) eines Bekleidungsstückes (2), vorzugsweise für Schutz- und/oder militärische Zwecke, wie ABC-Schutzanzug oder dergleichen, und einer Atemschutzmaske (5).
20. Verwendung nach Anspruch 18 oder 19, gekennzeichnet durch die Merkmale des kennzeichnenden Teils eines oder mehrerer der Ansprüche 1 bis 15.

15 Claims

- Hood (1), in particular for a clothing item (2), preferably for protective and/or military purposes, such as an NBC protective suit or the like, the hood (1) comprising an orbital elastic hem (3) to form a face opening (4), the face opening (4) being provided to receive a respirator (5) and the hem (3) abutting the respirator (5) in the use state, characterized in that the side of hem (3) that faces into the face opening (4) is provided with a multiplicity of orbital sealing elements (6) which are durably conjoined with the hem (3) and are in the form of elastofibres for close-seal abutment of the respirator (5).
- Hood according to Claim 1, characterized in that the sealing elements (6) about the respirator (5) at least essentially linearly, and/or in that the sealing elements (6) project and/or protrude from the hem (3).
- Hood according to Claim 1 or 2, characterized in that the sealing elements (6) are secured to the hem (3) by stitching, interweaving, adhesion, stapling, welding or the like.
- Hood according to any one of the preceding claims, characterized in that the sealing elements (6) are configured as a sealing ring, as a sealing lip or as a sealing protrusion.
- Hood according to any one of the preceding claims, characterized in that the sealing elements (6) are thread, filament, string or strip shaped and/or webbed and/or honeycomb shaped.
- Hood according to any one of the preceding claims, characterized in that the individual sealing elements (6) are in at least essentially parallel arrangement and/or in that the individual sealing elements (6) form a honeycomblike construction.
- Hood according to any one of the preceding claims,

characterized in that the elasticity of the sealing elements (6) corresponds at least essentially to the elasticity of the hem (3).

8. Hood according to any one of the preceding claims, characterized in that the cross-sectional thickness d of the sealing elements (6) is not less than $1/4$, in particular not less than $1/3$, preferably not less than $2/3$ and more preferably not less than $3/4$ of the cross-sectional thickness D of the hem (3), and/or the sealing elements (6) project and/or protrude from the hem (3) by not less than 0.1 mm, in particular not less than 0.25 mm, preferably not less than 0.4 mm, more preferably not less than 0.6 mm and even more preferably to an extent of 1 mm or more.

9. Hood according to any one of the preceding claims, characterized in that the sealing elements (6) have a relative elastic extensibility, based on their original length, of not less than 20% , in particular not less than 30% , preferably not less than 50% , more preferably not less than 70% and even more preferably not less than 85% or more, and/or in that the material of which the sealing elements (6) consist has a 25°C modulus of elasticity in stretching which is not more than $10^6 \text{ N}\cdot\text{m}^{-2}$, in particular not more than $10^7 \text{ N}\cdot\text{m}^{-2}$, preferably not more than $5\cdot 10^6 \text{ N}\cdot\text{m}^{-2}$, and is preferably in the range from $5\cdot 10^5 \text{ N}\cdot\text{m}^{-2}$ to $9\cdot 10^6 \text{ N}\cdot\text{m}^{-2}$.

10. Hood according to any one of the preceding claims, characterized in that the hood (1) including the face opening (4) comprises, in particular on the side portion of face opening (4), a fastener (7), in particular in the form of a touch and close fastener or zip fastener, and/or in that the hood (1) is detachable from the rest of clothing item (2).

11. Hood according to any one of the preceding claims, characterized in that the hood (1) is fully or partially lined on its inside surface with an inside material, the inside material comprising an adsorption-capable material, in particular activated carbon, preferably in the form of activated carbon granules or spherules and/or activated carbon fibres, and/or a water vapour pervious, at least essentially gas and/or air impervious barrier layer which prevents or at least retards the passage of harmful gases or liquids, in particular chemical warfare agents.

12. Hood according to any one of the preceding claims, characterized in that the hood (1) comprises at least one loop, tab or the like (8) above the face opening (4).

13. Clothing item (2), preferably for protective and/or military purposes, such as an NBC protective suit or the like, comprising a hood (1) according to any one of the preceding claims.

14. Clothing item according to Claim 13, characterized in that the hood (1) is durably joined to the rest of clothing item (2), in particular by stitching, interweaving, adhering, stapling or the like, or in that the hood (1) and the rest of clothing item (2) form a one-piece construction, or in that the hood (1) is detachable from the rest of clothing item (2), in particular by means of a zip fastener or of a touch and close fastener.

15. Clothing item according to Claim 13 or 14, characterized in that the clothing item (2) is fully or partially lined on its inside surface with an inside material, the inside material comprising an adsorption-capable material, in particular activated carbon, preferably in the form of activated carbon granules or spherules and/or activated carbon fibres, and/or a water vapour pervious, at least essentially gas and/or air impervious barrier layer which prevents or at least retards the passage of harmful gases or liquids, in particular chemical warfare agents.

16. Clothing item (2), in particular for protective and/or military purposes, such as an NBC protective suit or the like, the clothing item (2) comprising at least one opening (4) for a body part, such as a hand, arm, foot, leg or head, having an orbital elastic hem (3) to form this opening (4), the opening (4) being provided to receive a further clothing item in particular having a smooth surface texture and/or to receive an outfit article (5) and the hem (3) abutting the further clothing item and/or the outfit article (5) in the use state, characterized in that the side of the hem that faces the further clothing item and/or the outfit article (5), preferably the side of hem (3) which faces into the opening (4), is provided with a multiplicity of orbital sealing elements (6) which are durably conjoined with the hem (3) and are in the form of elastofibres for closeout abutment of the further clothing item and/or outfit article (5).

17. Clothing item according to Claim 16, characterized by the features of the characterizing portion of one or more of Claims 1 to 15.

18. Use of an elastic hem (3) for closing out the transition between a portion of a clothing item (2), in particular a hood (1), on the one hand and a further clothing item and/or outfit article (5), in particular a respirator, on the other, characterized in that the side of hem (3) that faces the further clothing item and/or the outfit article (5) is provided with a multiplicity of orbital sealing elements (6) which are durably conjoined with the hem (3) and are in the form of elastofibres for closeout abutment of the further clothing item and/or outfit article (5).

19. Use according to Claim 18 for closing out the transition of a hood (1) of a clothing item (2), preferably for protective and/or military purposes, such as an NBC protective suit or the like, and of a respirator (5).

20. Use according to Claim 18 or 19, characterized by the features of the characterizing portion of one or more of Claims 1 to 15.

Revendications

1. Capuche (1), en particulier pour un vêtement (2), de préférence pour usage de protection et/ou militaire, tel qu'une combinaison de protection ABC ou similaire, la capuche (1) présentant un ourlet élastique périphérique (3) pour former une ouverture de champ de vision (4), l'ouverture de champ de vision (4) étant prévue pour recevoir un masque de protection respiratoire (5) et l'ourlet (3) s'appliquant dans l'état d'utilisation contre le masque de protection respiratoire (5),
caractérisée en ce que
du côté de l'ourlet (3) tourné vers l'ouverture de champ de vision (4) est prévue une pluralité d'éléments d'étanchéité (6) périphériques connectés de manière durable à l'ourlet (3), en forme de fibres élastomères pour l'application étanche contre le masque de protection respiratoire (5).
2. Capuche selon la revendication 1, **caractérisée en ce que** les éléments d'étanchéité (6) sont réalisés de manière à s'appliquer au moins sous forme sensiblement linéaire contre le masque de protection respiratoire (5) et/ou en ce que les éléments d'étanchéité (6) sont réalisés de manière à faire saillie ou à dépasser de l'ourlet (3).
3. Capuche selon la revendication 1 ou 2, **caractérisée en ce que** les éléments d'étanchéité (6) sont fixés sur l'ourlet (3) par couture, tissage, collage, brochage, soudage ou similaire.
4. Capuche selon l'une quelconque des revendications précédentes, **caractérisée en ce que** les éléments d'étanchéité (6) sont réalisés sous forme d'anneau d'étanchéité, de lèvres d'étanchéité ou de saillie d'étanchéité.
5. Capuche selon l'une quelconque des revendications précédentes, **caractérisée en ce que** les éléments d'étanchéité (6) sont réalisés en forme de fils, de bandes, de cordons ou en forme de rubans et/ou en forme de nervures et/ou en nid d'abeilles.
6. Capuche selon l'une quelconque des revendications précédentes, **caractérisée en ce que** les éléments d'étanchéité (6) individuels sont disposés essentiel-

lement parallèlement les uns aux autres et/ou en ce que les éléments d'étanchéité (6) individuels constituent une structure en nid d'abeilles.

7. Capuche selon l'une quelconque des revendications précédentes, **caractérisée en ce que** l'élasticité des éléments d'étanchéité (6) correspond au moins essentiellement à l'élasticité de l'ourlet (3).
8. Capuche selon l'une quelconque des revendications précédentes, **caractérisée en ce que** l'épaisseur en section transversale d des éléments d'étanchéité (6) vaut au moins 1/4, notamment au moins 1/3, de préférence au moins 2/3, particulièrement préférentiellement au moins 3/4 de l'épaisseur en section transversale D de l'ourlet (3) et/ou les éléments d'étanchéité (6) sont réalisés de manière à faire saillie et/ou à dépasser d'au moins 0,1 mm, notamment d'au moins 0,25 mm, de préférence d'au moins 0,4 mm, de préférence d'au moins 0,6 mm et particulièrement préférentiellement d'au moins 1 mm et plus de l'ourlet (3).
9. Capuche selon l'une quelconque des revendications précédentes, **caractérisée en ce que** les éléments d'étanchéité (6) présentent une capacité d'extension élastique relative par rapport à leur longueur initiale, d'au moins 20%, notamment d'au moins 30%, de préférence d'au moins 50%, de préférence d'au moins 70%, particulièrement préférentiellement d'au moins 85% ou plus, et/ou en ce que le module d'élasticité en extension du matériau constituant les éléments d'étanchéité (6) à 25°C vaut au maximum 10^6 N/m^2 , notamment au maximum 10^7 N/m^2 , de préférence au maximum 5.10^6 N/m^2 , et se situe de préférence dans la plage de 5.10^6 N/m^2 à 9.10^6 N/m^2 .
10. Capuche selon l'une quelconque des revendications précédentes, **caractérisée en ce que** la capuche (1) y compris l'ouverture de champ de vision (4), notamment au niveau de la partie latérale de l'ouverture de champ de vision (4), présente une fermeture (7), notamment sous forme de fermeture de type velcro ou de fermeture à glissière, et/ou en ce que la capuche (1) est réalisée de manière amovible par rapport au reste du vêtement (2).
11. Capuche selon l'une quelconque des revendications précédentes, **caractérisée en ce que** la capuche (1) est doublée au niveau de son côté intérieur, complètement ou en partie, d'un matériau intérieur, le matériau intérieur comprenant un matériau adsorbant, notamment du charbon actif, de préférence sous forme de grains de charbon actif ou de billes de charbon actif et/ou de fibres de charbon actif, et/ou comprend une couche barrière perméable à la vapeur d'eau, au moins essentiellement imperméable au gaz et/ou à l'air, qui empêche ou au moins

retarde le passage de gaz toxiques ou de liquides toxiques, notamment des agents de combat chimiques.

12. Capuche selon l'une quelconque des revendications précédentes, caractérisée en ce que la capuche (1) présente, au-dessus de l'ouverture du champ de vision (4), au moins une boucle, une languette ou similaire (6).
13. Vêtement (2), de préférence pour usage de protection et/ou militaire, tel qu'une combinaison de protection ABC ou similaire, présentant une capuche (1) selon l'une quelconque des revendications précédentes.
14. Vêtement selon la revendication 13, caractérisé en ce que la capuche (1) est connectée de manière durable au reste du vêtement (2), notamment par couture, tissage, collage, brochage ou similaire, ou en ce que la capuche (1) et le reste du vêtement (2) sont réalisés d'une seule pièce ou en ce que la capuche (1) est réalisée de manière amovible par rapport au reste du vêtement (2), notamment au moyen d'une fermeture à glissière ou de type velcro.
15. Vêtement selon la revendication 13 ou 14, caractérisé en ce que le vêtement (2) est doublé sur son côté intérieur complètement ou en partie d'un matériau intérieur, le matériau intérieur comprenant un matériau adsorbant, notamment du charbon actif, de préférence sous forme de grains de charbon actif ou de billes de charbon actif et/ou de fibres de charbon actif, et/ou comprend une couche barrière perméable à la vapeur d'eau, au moins essentiellement imperméable au gaz et/ou à l'air, qui empêche ou au moins retarde le passage de gaz toxiques ou de liquides toxiques, notamment des agents de combat chimiques.
16. Vêtement (2), notamment pour usage de protection et/ou militaire, tel qu'une combinaison de protection ABC ou similaire, le vêtement (2) présentant au moins une ouverture (4) pour une partie corporelle, telle qu'une main, un bras, un pied, une jambe ou la tête, avec un ourlet élastique périphérique (3) pour former cette ouverture (4), l'ouverture (4) étant prévue pour recevoir un autre vêtement notamment avec une structure superficielle lisse et/ou pour recevoir un objet d'équipement (5) et l'ourlet (3) s'appliquant dans l'état d'utilisation contre le vêtement supplémentaire et/ou l'objet d'équipement (5), caractérisé en ce que du côté de l'ourlet tourné vers le vêtement supplémentaire et/ou l'objet d'équipement (5), de préférence du côté de l'ourlet (3) tourné vers l'ouverture (4), est prévue une pluralité d'éléments d'étanchéité (6) périphériques connectés de manière durable à l'our-

let (3), en forme de fibres élastomères pour l'application étanche contre le vêtement supplémentaire et/ou l'objet d'équipement (5).

17. Vêtement selon la revendication 16, caractérisé par les caractéristiques de la partie caractérisante d'une ou plusieurs des revendications 1 à 15.
18. Utilisation d'un ourlet élastique (3) pour l'étanchéité de la transition entre une partie d'un vêtement (2), notamment une capuche (1), d'une part, et un autre vêtement et/ou un objet d'équipement (5), notamment un masque de protection respiratoire, d'autre part, caractérisée en ce que l'on prévoit, du côté de l'ourlet (3) tourné vers le vêtement supplémentaire et/ou l'objet d'équipement (5), une pluralité d'éléments d'étanchéité (6) périphériques connectés de manière durable à l'ourlet (3), en forme de fibres élastomères pour l'application étanche contre le vêtement supplémentaire et/ou l'objet d'équipement (5).
19. Utilisation selon la revendication 18, pour l'étanchéité de la transition entre une capuche (1) d'un vêtement (2), de préférence pour usage de protection et/ou militaire, tel qu'une combinaison de protection ABC ou similaire, et un masque de protection respiratoire (5).
20. Utilisation selon la revendication 18 ou 19, caractérisée par les caractéristiques de la partie caractérisante d'une ou plusieurs des revendications 1 à 15.

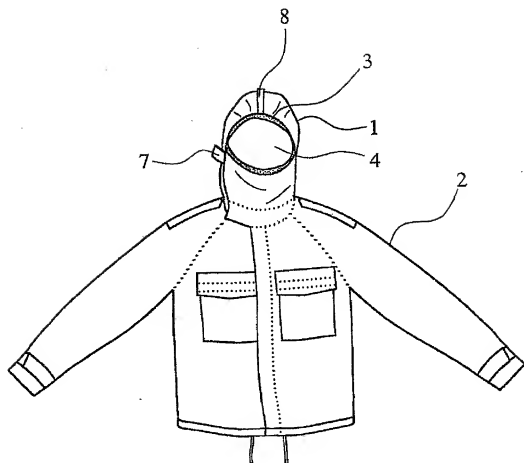


Fig. 1

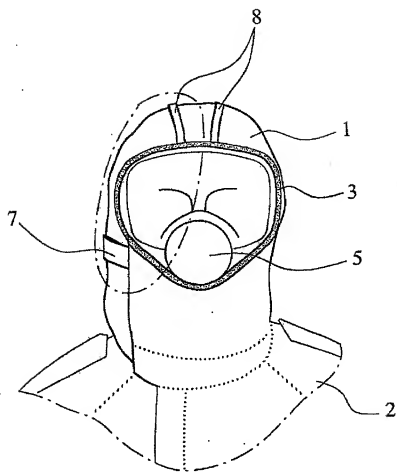


Fig. 2

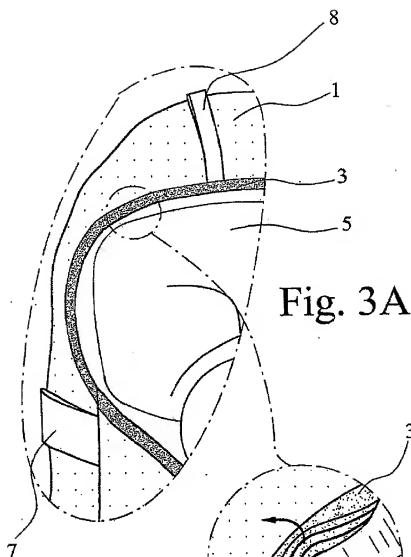
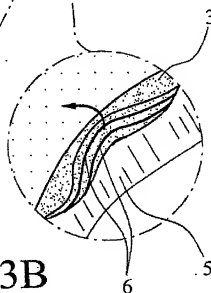


Fig. 3A

Fig. 3B



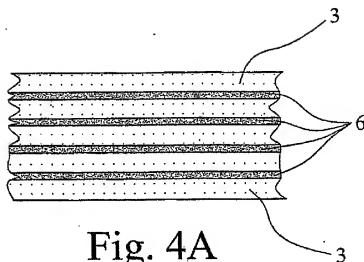


Fig. 4A

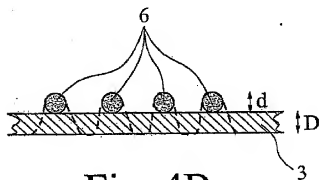


Fig. 4B

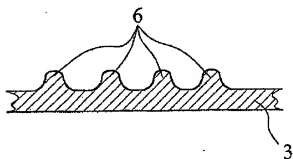


Fig. 4C

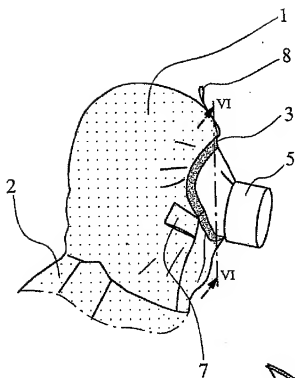


Fig. 5

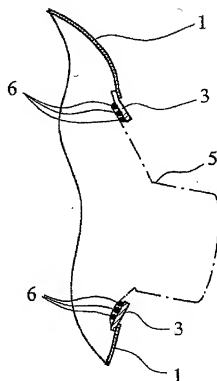


Fig. 6

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences**

APPEAL BRIEF

Application No.: 10/559,095
Confirmation No.: 1462
First-Named Inventor: Marianne HOFMANN
Filing Date: December 1, 2005
Art Unit: 3765
Examiner: Hoey, Alissa L.
Attorney Docket No.: 008312-000006
Title: HOOD FOR PROTECTIVE GARMENT

EXHIBIT C



Office de la propriété
Intellectuelle
du Canada

Un organisme
d'Industrie Canada

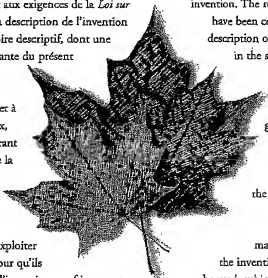
Canadian
Intellectual Property
Office

An Agency of
Industry Canada

Brevet canadien / Canadian Patent

✳ Le commissaire aux brevets a reçu une demande de délivrance de brevet visant une invention. Ladite requête satisfait aux exigences de la *Loi sur les brevets*. Le titre et la description de l'invention figurent dans le mémoire descriptif, dont une copie fait partie intégrante du présent document.

Le présent brevet confère à son titulaire et à ses représentants légaux, pour une période expirant vingt ans à compter de la date du dépôt de la demande au Canada, le droit, la faculté et le privilège exclusif de fabriquer, construire, exploiter et vendre à d'autres, pour qu'ils l'exploitent, l'objet de l'invention, sauf jugement en l'espèce rendu par un tribunal compétent, et sous réserve du paiement des taxes périodiques.



✳ The Commissioner of Patents has received a petition for the grant of a patent for an invention. The requirements of the *Patent Act* have been complied with. The title and a description of the invention are contained in the specification, a copy of which forms an integral part of this document.

The present patent grants to its owner and to the legal representatives of its owner, for a term which expires twenty years from the filing date of the application in Canada, the exclusive right, privilege and liberty of making, constructing and using the invention and selling it to others to be used, subject to adjudication before any court of competent jurisdiction, and subject to the payment of maintenance fees.

BREVET CANADIEN

2,524,465

CANADIAN PATENT

Date à laquelle le brevet a été
accordé et délivré

2008/08/05

Date on which the patent
was granted and issued

Date du dépôt de la demande

2004/05/08

Filing date of the application

Date à laquelle la demande est
devenue accessible au public
pour consultation

2004/12/09

Date on which the application
was made available for
public inspection

Commissaire aux brevets / Commissioner of Patents

Canada

3256 (CIPD 91) 06/07

OPIC  CIPD



Office de la propriété
Intellectuelle
du Canada
Un organisme
d'industrie Canada

Canadian
Intellectual Property
Office
An agency of
Industry Canada

CA 2324463 C 2006/01/03

(11)(21) **2 524 465**

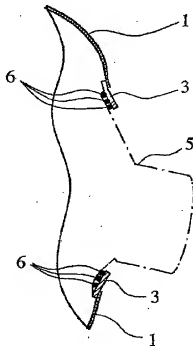
(12) **BREVET CANADIEN
CANADIAN PATENT**

(13) **C**

(86) Date de dépôt PCT/PCT Filing Date: 2004/05/08
(87) Date publication PCT/PCT Publication Date: 2004/12/09
(45) Date de délivrance/Issue Date: 2008/08/05
(85) Entrée phase nationale/National Entry: 2005/11/02
(86) N° demande PCT/PCT Application No.: EP 2004/004932
(87) N° publication PCT/PCT Publication No.: 2004/105880
(30) Priorités/Priorities: 2003/06/02 (DE103 25 057.3);
2003/06/21 (DE103 27 994.6)

(51) Cl.Int./Int.Cl. *A62B 17/00* (2006.01),
A41D 27/24 (2006.01), *A62B 17/04* (2006.01)
(72) Inventeur/Inventor:
HOFMANN, MARIANNE, DE
(73) Propriétaire/Owner:
BLUECHER GMBH, DE
(74) Agent: OYEN WIGGS GREEN & MUTALA LLP

(54) Titre : CAPUCHE POUR VETEMENT DE PROTECTION
(54) Title: HOOD FOR PROTECTIVE GARMENT



(57) Abrégé/Abstract:

The invention relates to a hood (1), particularly for a clothing item (2), preferably for protective and/or military purposes, such as an NBC protective garment (suit) or the like, wherein the hood (1) comprises a circumferential (i.e. peripheral) elastic hem (3) for forming a face opening (4), said face opening (4) being provided for receiving a respirator (5), and the hem (3) abutting the respirator (5) in the use state. To achieve or improve the sealing of the transition area between hem (3) and respirator (5), the side of the hem (3) that faces into the face opening (4) is provided with at least one circumferential sealing element (6) for closeout abutment of the respirator (5).

Canada

<http://opic.gc.ca> • Ottawa-Hull K1A 0C9 • <http://cipo.gc.ca>

OPIC • CIPQ 191

OPIC



CIPO

WHAT IS CLAIMED IS:

1. A hood for a nuclear-biological-chemical (NBC) protective clothing item, the hood comprising:
 - 5 a circumferential elastic hem forming a face opening for receiving and abutting a respirator,
the hem having an inward side facing into the face opening, the inward side having a multiplicity of circumferential elastofiber sealing elements connected to the hem for impermeably abutting the respirator, wherein the sealing elements project from the hem and are substantially parallel to one another and abut the respirator substantially linearly.
- 15 2. A hood according to claim 1, wherein the sealing elements project from the hem by not less than 0.25 mm.
3. A hood according to claim 1, wherein the sealing elements are secured to the hem by one or more of: stitching, interweaving, adhering, stapling, and welding.
- 20 4. A hood according to claim 1, wherein each one of the sealing elements forms one or more of: a sealing ring, a sealing lip, and a sealing protrusion.
- 25 5. A hood according to claim 1, wherein the sealing elements are one or more of: thread-shaped, ligament-shaped, string-shaped and strip-shaped.
- 30 6. A hood according to claim 1, wherein the sealing elements have a cross-sectional thickness not less than 1/4 of a cross-sectional thickness of the hem.

7. A hood according to claim 1, wherein the sealing elements have an elasticity greater than or equal to an elasticity of the hem.
8. A hood according to claim 1, wherein the sealing elements have a relative elastic extensibility, based on their original length, of not less than 30 %.
9. A hood according to claim 1, wherein the sealing elements are formed of a material having, at 25° C, a stretching modulus of elasticity in the range of 5-105 N-m-2 to 9-106 N-m-2.
10. A hood according to claim 1, further comprising a fastener on a side portion of the face opening.
11. A hood according to claim 1, further comprising an inside surface liner formed of a material selected from the group consisting of:
 - (i) an activated carbon adsorptive material, and
 - (ii) a water-vapor-pervious and gas-impervious barrier layer material for preventing or retarding passage of harmful gases and liquids.
12. A nuclear-biological-chemical (NBC) protective clothing item having a hood as defined in any one of claims 1 to 11.
13. A clothing item according to claim 12, the clothing item further comprising an inside surface liner formed of a material selected from the group consisting of:
 - (i) an activated carbon adsorptive material, and
 - (ii) a water-vapor-pervious and gas-impervious barrier layer material for preventing or retarding passage of harmful gases and liquids.

1/5

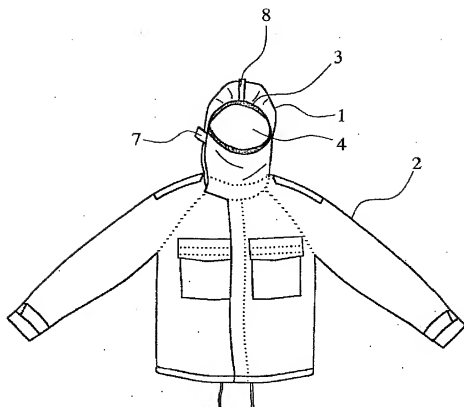


Fig. 1

2/5

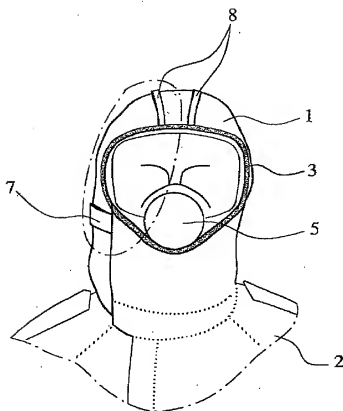


Fig. 2

3/5

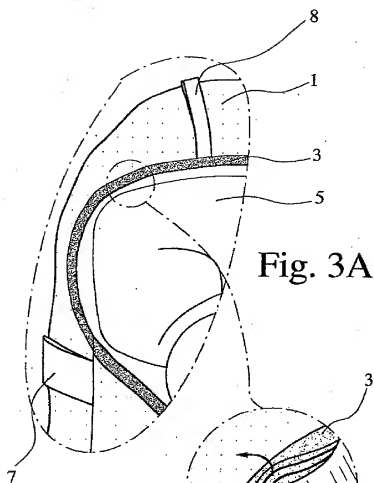


Fig. 3A

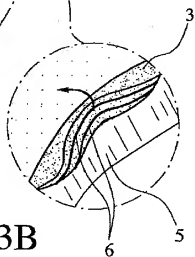


Fig. 3B

4/5

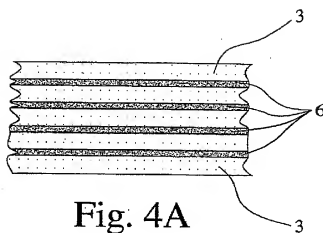


Fig. 4A

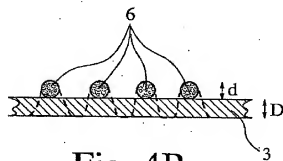


Fig. 4B

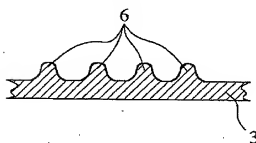


Fig. 4C

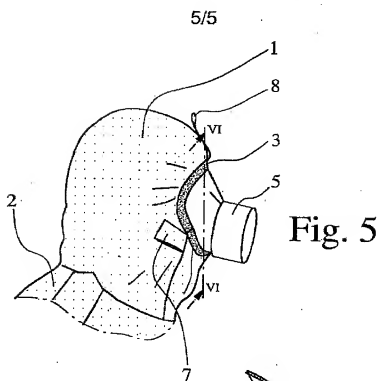
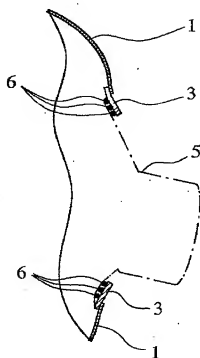


Fig. 6



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences

APPEAL BRIEF

Application No.: 10/559,095
Confirmation No.: 1462
First-Named Inventor: Marianne HOFMANN
Filing Date: December 1, 2005
Art Unit: 3765
Examiner: Hoey, Alissa L.
Attorney Docket No.: 008312-000006
Title: HOOD FOR PROTECTIVE GARMENT

EXHIBIT D

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/004932A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A62B17/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A41D A42B A62B A62D B60J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	6B 2 078 491 A (WOOD HARRIS & CO LTD) 13 January 1982 (1982-01-13) page 1, left-hand column, lines 5-10 page 1, left-hand column, lines 55-62 - right-hand column, lines 63-72 page 1, right-hand column, lines 95-98; figures 1,2	1-16
X	US 5 653 225 A (SCHEGERIN ROBERT) 5 August 1997 (1997-08-05) column 1, lines 6-9 column 2, lines 1-15 column 3, lines 4-37; figures 2,3	1-21
A	DE 198 34 688 A (BAYERISCHE MOTOREN WERKE AG) 3 February 2000 (2000-02-03) abstract; figures	4-6
	-/-	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

Z document member of the same patent family

Date of the actual completion of the international search

24 August 2004

Date of mailing of the international search report

01/09/2004

Name and mailing address of the ISA

European Patent Office, P.O. Box 5018 Patentkan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-3040, Tlx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

van Bolderbeek, H.

INTERNATIONAL SEARCH REPORT

International Application No.
PCT/EP2004/004932

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 77 15 247 U (DENSO-CHEMIE WEDEKIND KG) 25 August 1977 (1977-08-25) figure 1	7
A	EP 0 057 517 A (SIMPSON KEITH BELLAS) 11 August 1982 (1982-08-11) page 3, lines 19-38 - page 4, lines 1-36; figure 1	11
A	DE 39 24 033 A (RUITER ERNEST DE ; BLUECHER HASSO VON (DE)) 28 February 1991 (1991-02-28) column 2, lines 14-16	12,16
A	US 4 500 581 A (KOMAGATA HIDEKI ET AL) 19 February 1985 (1985-02-19) column 6, lines 38-56	12,16
A	US 2 086 325 A (NATHAN FRANKEL) 6 July 1937 (1937-07-06) figures	15
A	DE 87 10 165 U (GULDENER, FRITZ) 1 October 1987 (1987-10-01) page 4, lines 4-24 page 8, lines 17-26; figure 1	
A	US 2003/033657 A1 (AUSTIN RICK A) 20 February 2003 (2003-02-20) page 1, paragraph 11 page 1, lines 13-17, paragraph 15; figures & US 4 174 710 A (PAMPUCH KLAUS) 20 November 1979 (1979-11-20)	
A	US 2 005 072 A (BOOHARIN LEO Y) 18 June 1935 (1935-06-18) page 2, right-hand column, lines 42-44; figure 1	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2004/004932

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2078491	A	13-01-1982	NONE
US 5653225	A	05-08-1997	FR 2686795 A1 06-08-1993 DE 69304629 D1 17-10-1996 DE 69304629 T2 03-04-1997 EP 0578808 A1 19-01-1994 WO 9314818 A1 05-08-1993
DE 19834688	A	03-02-2000	DE 19834688 A1 03-02-2000
DE 7715247	U	25-08-1977	DE 7715247 U1 25-08-1977
EP 0057517	A	11-08-1982	DE 3272496 D1 18-09-1986 EP 0057517 A2 11-08-1982 EP 0150261 A2 07-08-1985
DE 3924033	A	28-02-1991	DE 3924033 A1 28-02-1991
US 4500581	A	19-02-1985	JP 1057619 B 06-12-1989 JP 1569607 C 10-07-1990 JP 57156036 A 27-09-1982 DE 3210070 A1 18-11-1982 GB 2096536 A ,B 20-10-1982 NL 8201181 A ,B, 18-10-1982
US 2086325	A	06-07-1937	NONE
DE 8710165	U	01-10-1987	DE 8710165 U1 01-10-1987
US 2003033657	A1	20-02-2003	NONE
US 4174710	A	20-11-1979	DE 2718864 A1 09-11-1978
US 2005072	A	18-06-1935	NONE